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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/648,492	08/25/2003	Yutaka Miyasaka	534101-6	4214

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EXAMINER

GLEITZ, RYAN M

ART UNIT	PAPER NUMBER
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2852

DATE MAILED: 04/29/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

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<b>Office Action Summary</b>	<b>Application No.</b> 10/648,492	<b>Applicant(s)</b> MIYASAKA ET AL.	
	<b>Examiner</b> Ryan Gleitz	<b>Art Unit</b> 2852	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
  - If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
  - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
  - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 22 February 2005.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-6 and 9-16 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 3, 6, 9, 12, 15 and 16 is/are allowed.
- 6) ☒ Claim(s) 1, 2, 4, 5, 10, 11, 13 and 14 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                        | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. _____  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                                    |

## **DETAILED ACTION**

### ***Claim Objections***

Claims 1, 4, 7, 10, and 13 are objected to because of an informality in claim 1. An editing error has caused a portion of the claim to be repeated. The text from “g agent” in line 10 to “permeability, and” in line 15 should be removed. The claim is examined assuming this correction has been made. Appropriate correction is required.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1, 2, 10, 11, 13, and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hibino et al. (US 6,473,584) in view of Ogiri et al. (JP 07-253705).

Hibino et al. disclose an image forming apparatus including developing means (27) for developing an electrostatic latent image on an image carrier (3) by using a two-component

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developing agent (col. 6, line 24) containing polymerized toner, the developing means (27) comprising: a supply/convey member (24) in the form of a spiral screw which conveys the two-component developing agent in an axial direction while agitating the developing agent; wherein the supply/convey member has a diameter of 10 to 25 mm (col. 7, lines 36-37), which reads on a diameter of not less than 23 mm. A carrier average particle diameter  $R_c$  (um) is 35 (col. 6, line 30), which reads on not more than 50 um and not less than 20um.

Regarding claim 2, a carrier average particle diameter  $R_c$  (um) is 35 (col. 6, line 30), and  $R_h$  is 25 from above, satisfying  $R_h \geq -0.891 * R_c + 26.008$ .

Hibino et al. do not disclose a toner density sensor.

However, Ogiri et al. disclose an image forming apparatus including a toner density sensor (440) which is placed to oppose a supply/convey member (413) and detects a toner density. The toner density sensor (440) comprises a sensor which detects a change in permeability (abstract, line 4) to manage the toner concentration in a developer with a sufficient precision in order to obtain a good transfer picture. See Translation, paragraph [0002].

Regarding claims 10 and 11, figure 1 illustrates a perpendicular bisector of a head surface of the toner density sensor (440) passes through a central axis of the supply/convey member (413).

Regarding claims 13 and 14, the supply/convey member (413) is in a non-contact state with respect to the head surface of the toner density sensor (440), and a gap (B) therebetween is set to 0.4 mm or less ([0018], line 8), which reads on not more than 0.8 mm.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the image forming apparatus of Hibino et al. with the toner density sensor

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taught by Ogiri et al.. The suggestion for doing so would have been that Ogiri et al. teach that in order to obtain a good transfer picture, it is required to manage the toner concentration in a developer with sufficient precision, which can be performed using the permeability sensor. See Translation, paragraphs [0002]-[0003].

Claims 4 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hibino et al. (US 6,473,584) in view of Ogiri et al. (JP 07-253705) as applied to claims 1, 2, 7, 8, 10, 11, 13, and 14 above, and further in view of Sato (US 6,249,664).

Hibino et al. disclose the image forming apparatus above including a supply/convey member (24) with a screw pitch of 20 mm (col. 7, line 56), which reads on 16 to 33 mm, but are silent on the rotation speed of the supply/convey member.

However, Sato discloses an image forming apparatus with a supply/convey member (146, 147) operated at a speed of 100 to 300 rpm, which reads on 3 to 10 rps.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the supply/convey member of Hibino et al. with the rotational speeds taught by Sato to improve the toner saturation time required for the toner to arrive at the prescribed density value (col. 14, lines 5-32).

#### ***Allowable Subject Matter***

Claims 3, 6, 9, 12, 15 and 16 are allowed.

#### ***Response to Arguments***

Applicant's arguments filed 22 February 2005 have been fully considered but they are not persuasive.

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In response to the rejection of claims 1 and 2 over Hibino et al. in view of Ogiri et al.

Applicant submits the following:

(1) Hibino fails to teach a toner density sensor for detecting a change in permeability of the developing agent, as conceded in the Office Action. See Arguments, page 9, lines 3-6;

(2) A toner density sensor for detecting a change in permeability of the developing agent is also not present or suggested in Ogiri. See Arguments, page 9, lines 7-8; and

(3) Even if Ogiri does teach the toner density sensor, there is no disclosure or suggestion in either Hibino or Ogiri to combine them. See Arguments page 9, lines 8-10.

Regarding point (1), the Applicant and the Examiner agree. This point is considered moot.

Regarding point (2), Applicant later concedes that "Ogiri teaches an image forming apparatus including a permeability sensor that is used to detect toner density." See Arguments page 9, lines 11-12. Accordingly, this point is considered moot.

Regarding point (3), Applicant points out that Ogiri does not address the problems associated with use of a carrier having a reduced particle diameter. See Arguments page 9, lines 11-12. Applicant's assertion is that Ogiri does not address the same problem as addressed by the present invention. This argument is not persuasive. Obviousness does not require that the prior art address the same problem as Applicant to produce the claimed invention. The problems associated with use of a carrier having reduced particle diameter are not claimed.

Obviousness can be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do

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so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art.

As noted above, Hibino discloses no toner density sensor. Ogiri is cited for a permeability sensor that is used to detect toner density. Motivation is sufficient if it provides a reason why one of ordinary skill in the art would include the permeability sensor of Ogiri in the apparatus of Hibino. Motivation does not, as Applicant assert, require that the reason for combining be the same problem and solution disclosed in the present invention.

The utility of a toner density sensor to keep the toner density of a developing agent constant is sufficient motivation why one of ordinary skill in the art would include a toner density sensor. This is well known in the art, as pointed out by Applicant. See Arguments, page 8, lines 5-6. Additionally, Ogiri specifically teaches that in order to obtain a good transfer picture, it is required to manage the toner concentration in a developer with sufficient precision, which can be performed using the permeability sensor. See Translation, paragraphs [0002]-[0003].

### ***Conclusion***

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37

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CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

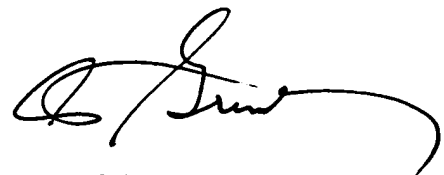
***Contact Information***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ryan Gleitz whose telephone number is (571) 272-2134. The examiner can normally be reached on Monday-Friday between 9:00AM and 6:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Arthur Grimley can be reached on (571) 272-2136. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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